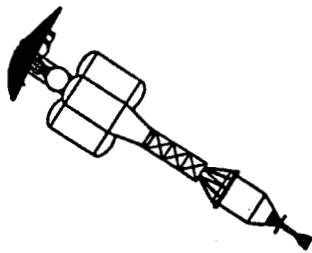


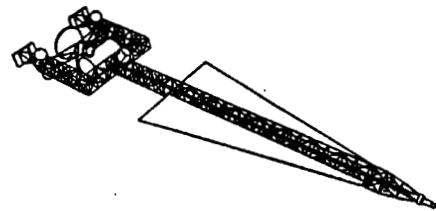
N 9 3 - 2 6 9 1 2

## Focused Technology: Nuclear Propulsion

### Nuclear Thermal Propulsion



### Nuclear Electric Propulsion



### Presentation to SSTAC/ARTS

Thomas J. Miller  
10/21/92

NASA

LEWIS RESEARCH CENTER

#### OBJECTIVE

##### OBJECTIVE

DEVELOP AND DEMONSTRATE TECHNOLOGY FOR NUCLEAR PROPULSION SYSTEMS TO  
SATISFY USER CODE MISSION REQUIREMENTS

- BALANCE TECHNOLOGY AND PERFORMANCE WITH SOUND SAFETY AND  
ENVIRONMENTAL POLICIES

##### SCOPE

- NUCLEAR THERMAL
- NUCLEAR ELECTRIC

##### CUSTOMER

- LUNAR/MARS EXPLORATION (OEX)
- ROBOTIC SCIENCE (OSSA)

##### ELEMENTS

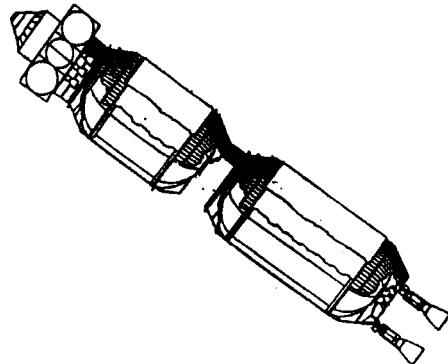
- CONCEPT DEVELOPMENT AND SYSTEMS ENGINEERING
- INNOVATIVE TECHNOLOGY
- ENABLING TECHNOLOGY (NEP & NTP)
- FACILITIES
- SAFETY, QA AND ENVIRONMENT

NUCLEAR PROPULSION OFFICE

**MISSIONS CONSIDERATIONS**

- SAFETY
- PERFORMANCE
- COST
- SCHEDULE FOR DEVELOPMENT
- OPERATIONAL FLEXIBILITY
  - APPLICATION TO RANGE OF MISSIONS
  - EVOLUTIONARY GROWTH POTENTIAL

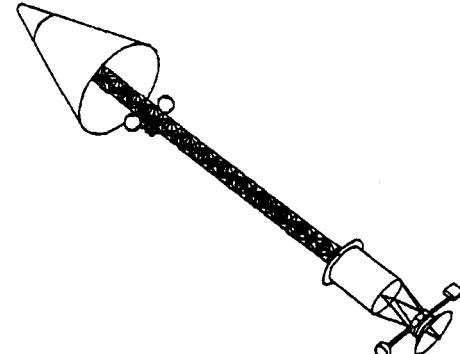
NUCLEAR PROPULSION OFFICE

**NUCLEAR PROPULSION SUMMARY****NUCLEAR THERMAL PROPULSION**

Specific Impulse: 850 - 950 sec

Thrust to Weight: 6 - 10

$$I_{sp} = T/m$$

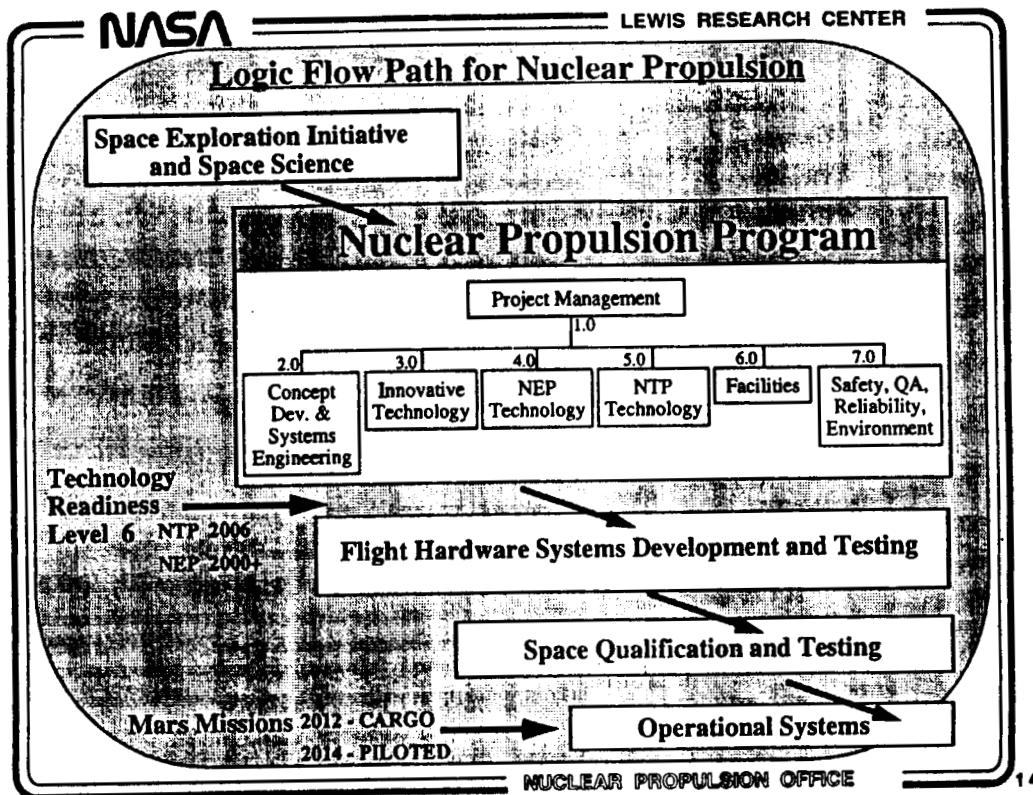
**NUCLEAR ELECTRIC PROPULSION**

Specific Impulse: 4000 - 8000 sec

## Specific Mass:

Robotic Science 40 Kg/Kw,  
Piloted Mars  $\leq 10$  Kg/Kw,**CHEMICAL PROPULSION (H<sub>2</sub>O): 460 sec Specific Impulse**

NUCLEAR PROPULSION OFFICE



14